Project Title - **College Recommendation**

Project Summary: It should be a 1-2 paragraph description of what your project is.

College Recommendation is a website that uses holistic metrics to find the most compatible colleges and display them in a clean layout for an individual user. Essentially the website will take the user's criteria to find the best college for them. The metrics include level of diversity, location, salary potential, SAT/GPA, tuition cost, and more!

Our project will utilize college admissions, diversity, salary, and tuition data from US universities to provide students with a college recommendation system. Users will be able to list their preferences for schools (location, diversity, post-graduate salary, etc) and their student profile (SAT scores, GPA, race, gender). We will use this input to rank and suggest universities that align the closest with the user's background and needs.

Description of an application of your choice. State as clearly as possible what you want to do. What problem do you want to solve, etc.?

Deciding what college to attend can be complicated and stressful.😢 In particular, figuring out what factors to consider, then navigating the countless colleges to find the right one, can be difficult and inefficient. Our project will facilitate choosing the right college by providing criteria and allowing the user to select their desired options.

We intend to create a college recommendation search website that will place emphasis on users' individual preferences, desires, and interests. Many of the current college ranking websites prioritize non-individualistic factors (quality of graduate/professor research, prestige, US News rankings, etc.) when calculating rankings and recommending schools. We intend to cater our application and recommendations fully toward the individual user and their needs.

Usefulness. Explain as clearly as possible why your chosen application is useful. Make sure to answer the following questions: Are there any similar websites/applications out there? If so, what are they, and how is yours different?

Our application is different from the common college ranking websites (i.e. US News, Niche) as it adheres to more than just the common statistics (SAT, GPA, etc.) While these websites do well in ranking colleges by scores and status, they omit personal information. We will place our focus on including subjective matters. For example, the salary potential table from our Kaggle dataset includes a column titled "percent of alumni who think they are making the world a better place." Including unique criteria and incorporating more diversity in ranking colleges will make our program different.

Alongside such subjective criteria, we will still keep statistics such as SAT/GPA data, tuition cost, and salary potential as they are major metrics in comparing colleges. However, we will be able to offer a much more personalized recommendation to the user rather than basing solely off of prestige. Our goal is to create an enjoyable and holistic experience in finding the right college for the user.

Realness. Describe what your data is and where you will get it.

Our application will gather information from two main datasets. The dataset from Kaggle provides information on tuition, diversity, and post-graduate pay/salary from all US universities taken from various sources including the US Department of Education, the Chronicle of Higher Education, payscale.com and TuitionTracker.com. It contains five different tables and we will be using four of them:

- diversity_school.csv (name of school, total # enrolled, state of school, group/race/gender category, total # enrolled by category)
- salary_potential.csv (potential salary rank within state, name of school, state of school, early career pay, mid career pay, percent of alumni who think they are making the world a better place, percent of student body in STEM)
- tuition_cost.csv (name of school, state of school, state abbreviation, public/private/for-profit school, degree length, room and board cost, in-state tuition, in-state total cost of attendance, out-of-state tuition, out-of-state total cost of attendance)
- tuition_income.csv (name of school, state of school, total price, year, on/off campus, net cost/average actually paid after scholarships and awards, income bracket)

The second dataset we will be using is the US Department of Education's College Scorecard data. The first table contains data organized by students' fields of study, with attributes including school name, public/private/for-profit institution, credential level (bachelor's, master's, doctoral, etc), cumulative debt after graduation, and earnings one year after graduation. The second table contains institutional-level data and includes information on institutional information (name, location, zip code, accreditation agency), student enrollment/diversity, student aid, cost of attendance, and student outcomes.

Describe what data is stored in the database. (Where is the data from, and what attributes and information would be stored?)

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taken from various sources including the US Department of Education, the Chronicle of Higher Education, payscale.com and TuitionTracker.com. We go into more detail about the specifics later into the proposal. We plan to store this information in SQL tables so we can aggregate and manipulate the data. Currently, we plan to have 5 tables as we have 5 CSV files worth of data.

What are the basic functions of your web application? (What can users of this website do? Which simple and complex features are there?)

Essentially users can do a multitude of actions on this website to gather more information and insight on colleges. The most basic action is searching the database for keywords, like college names or other metrics. Doing so will allow the user to quickly find desired colleges. For example, searching "Urbana" should display University of Illinois at Urbana-Champaign with all of its statistics.

However, if they'd like to consider multiple criteria, there is also the option to "checkbox" metrics that they'd like in a college's attributes. Attributes include location, tuition, diversity, and more as aforementioned. For example, the user can select "Illinois" and "<16,000 for in-state tuition" to display University of Illinois at Urbana-Champaign, Rock Valley College, and other universities that fit the criteria.

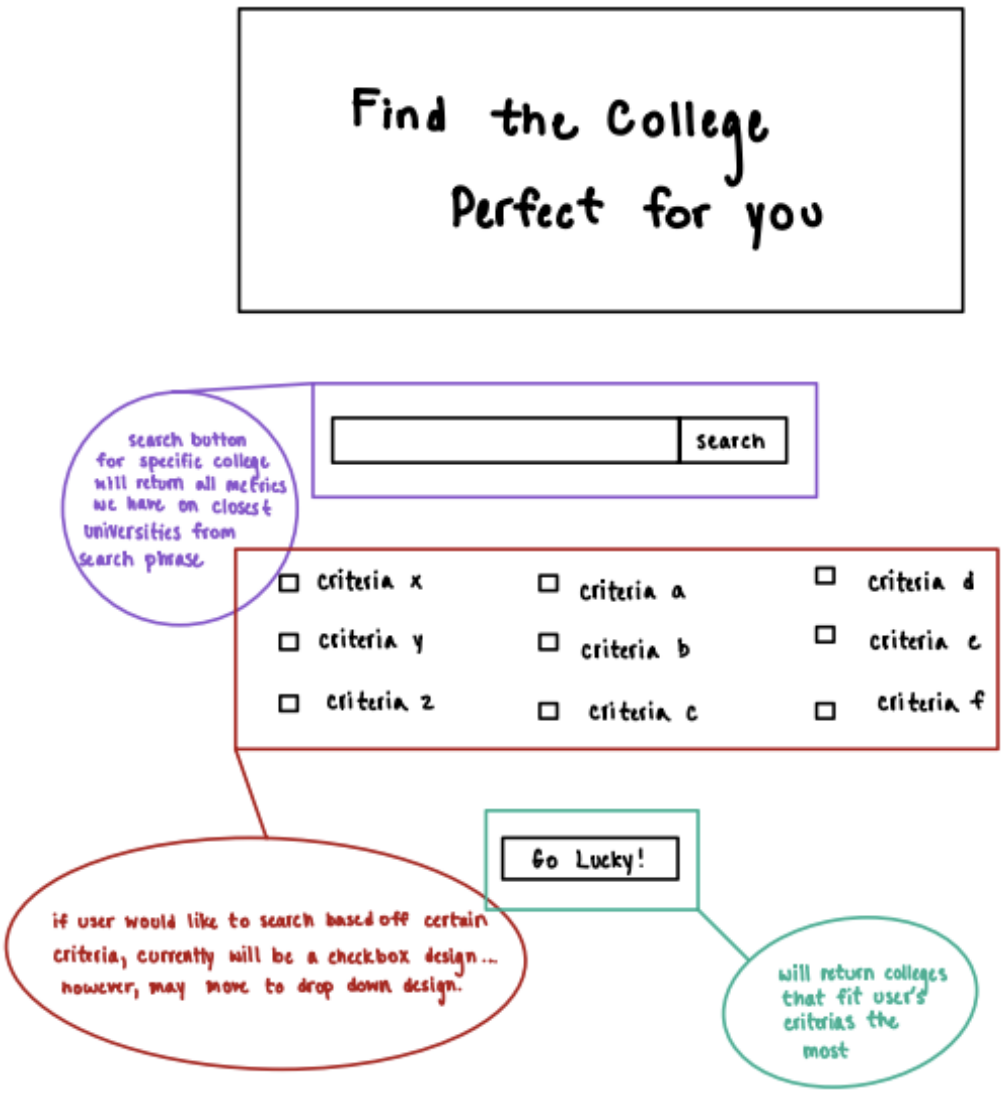
Moreover, we'd like to adhere to the user as much as possible, so we plan to enable a function that allows the user to place specific weights on certain criteria, like for example, if going to school in Illinois is two times more important than going to a diverse school, that will be something the user can specify and find in their search results.

What would be a good creative component (function) that can improve the functionality of your application? (What is something cool that you want to include? How are you planning to achieve it?)

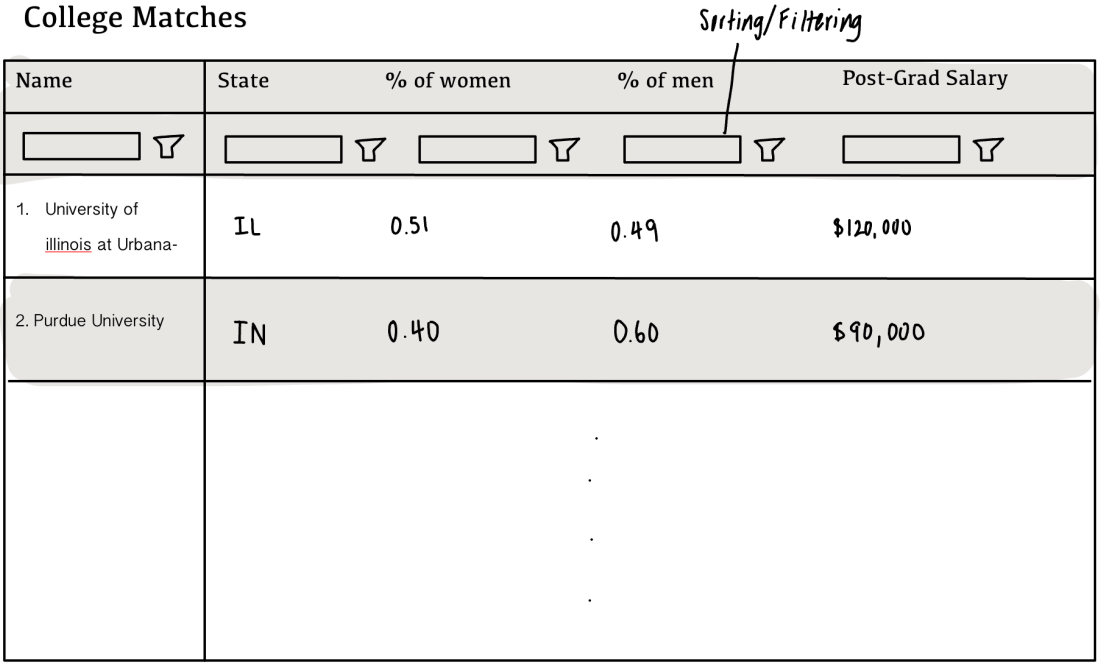
A majority of college ranking websites focus on objective metrics such as SAT/GPA, and tuition cost, but we'd like to focus on that and on other subjective factors that we mention a bit later in the proposal. Additionally, these websites lack the ability to weigh a certain criteria over another. As mentioned above, we plan to enable a function that allows the user to place specific weights on certain criteria, for example, if going to school in Illinois is two times more important than going to a diverse school, that will be something the user can specify and find in their search results. This unique application of data as well as never seen before functionality will differentiate us, and more importantly provide a creative spin on the ordinary college search websites.

Description of the **functionality** that your website offers. This is where you talk about what the website delivers. Talk about how a user would interact with the application (i.e., things that one could create, delete, update, or search for). Read the requirements for stages 4 and 5 to see what other functionalities you want to provide to the users. You should include:

- **A low-fidelity UI mockup**: What do you imagine your final application's interface might look like? A PowerPoint slide or a pencil sketch on a piece of paper works!


Find the College
Perfect for you
search button for specific college will return all metrics we have on closest universities from search phrase
search
criteria x
criteria a
criteria d
criteria y
criteria b
criteria e
criteria z
criteria c
criteria f
Go Lucky!
if user would like to search based off certain criteria, currently will be a checkbox design... however, may move to drop down design.
will return colleges that fit user's criterias the most

College Matches



- **Functionality and work distribution**: Who would be responsible for each of the tasks or subtasks?
  List of the person responsible for which exact functionalities in section 6. Explain how backend systems will be distributed across members. Be as specific as possible as this could be part of the final peer evaluation metrics.

Everyone will work on the most complicated part of the backend together. Otherwise, we will update the table with tasks and assign them by the week, making sure to distribute a fair amount of work to each person.

Issue	Status	Notes
Data Retrieval/Cleaning/ Organizing/Uploading	Database	Tiffany
Create ER Diagram	Database	Esther
Create translated relational schema	Database	Khatija
Implement 4 Tables	Database	Esther
CRUD operations	Database	Brad

Issue	Status	Notes
DDL Commands (Create, Drop, Alter)	Database	Tiffany
2 advanced SQL queries	Database	Everyone
Procedure + Trigger OR Transaction + Trigger (which involves the 2 advanced SQL queries)	Database	Everyone
Setup	Frontend	Khatija
Create headers for each category (ex. Tuition, % who believe they're making it a better place, State, etc.)	Frontend	Esther
Create checkboxes that display category options and send them to the backend (ex. Under State - IL, MI, IO)	Frontend	Tiffany
Create a function that takes in category values and filter dataset (ex. Woman, <$1,000,00, Illinois). Return list of colleges that meet those criteria	Backend	Khatija
Create a search bar for college. Takes in user input and searches database	Frontend Backend	Brad